

# SURVEY OF ARCHAEOLOGICAL SITES ON MOTUTAPU ISLAND

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*Abstract.* A survey of Motutapu Island revealed evidence of 74 sites of prehistoric Polynesian occupation. These are classified tentatively on the basis of visible surface features, and the nature of the occupation is discussed.

Motutapu is a fertile, undulating island, situated in the Hauraki Gulf immediately north-east of Rangitoto, to which it is at present joined by a causeway. The island has an area of 3,700 acres (1497 ha), and reaches a highest point of 398 feet (121 m) above sea level, although much of the central part of the island is higher than 300 feet (91 m).

Geologically, Motutapu is composed of two different formations. The northern and eastern parts of the island are formed by the ancient greywacke which also underlies much of Motuihe, Rakino, Waiheke, Ponui, and some eastern parts of Auckland such as Bucklands Beach and Kawakawa Bay. The southern and western portions of the island are composed of the tertiary Waitemata series familiar in parts of mainland Auckland. The western coast of Motutapu, particularly, is characterised by cliffs of the Waitemata formation (Searle 1964, p. 50).

Motutapu is unique in that almost the entire island is blanketed by fine basaltic ash, erupted from Rangitoto in comparatively recent times. A fertile soil has developed on this ash. Two radiocarbon dates show that the eruption probably took place about 1200 A.D. (Brothers and Golson 1959, pp. 573-574), at a time when human occupation had already begun (Scott, following report). The eruption would have been a catastrophic event, which interrupted human occupation, and for a time rendered the island uninhabitable. The fertile soil which developed on the ash, however, attracted renewed occupation as the large number of archaeological sites on the island testifies.

The island was acquired by Europeans in the 1850s from remnants of Ngati Paoa and allied tribes who formerly occupied many of the Hauraki Gulf islands. Few traditions relating to it are known. It was farmed privately until the Second World War when the entire island was taken over by the Government as a defence area. Since the war, the island has been farmed by the Lands and Survey Department as an experimental farm, and has remained largely closed to the public (Maddock 1966). It has now been added to the Hauraki Gulf Maritime Park but, at the time of writing, only beach areas are normally accessible to the public.

The island has several features which make it particularly attractive to archaeologists. Its predominantly rural character has led to the preservation of numerous small archaeological sites of a kind that is now rare to nonexistent in the

Auckland Metropolitan area. Although some sites have been damaged by army works and others by modern farming development, the survival rate is still high compared with adjacent mainland areas. The island is large enough, and has sufficient permanently flowing streams, to have supported more than transient camping occupations in the past, but small enough for a fairly thorough survey of all surviving archaeological sites to be possible. The ubiquitous presence of the Rangitoto ash shower, dating near the commencement of the human occupation sequence, provides a recognisable horizon in archaeological sites. Finally, Motutapu's inaccessibility in recent times combined with its proximity to Auckland City, makes it an ideal location for investigating aspects of Auckland's prehistory.

### ARCHAEOLOGICAL EXCAVATIONS

Three separate excavations have been carried out on Motutapu, as well as a site survey, making it one of the most intensively studied areas in the Auckland province.

The first excavation on the island was that by Golson and members of the Auckland University Archaeological Society at Pig Bay (N38/21) in 1958 and 1959. This was sufficient to establish the importance of Motutapu as a research area. Preliminary reports indicate the range of material available (Golson and Brothers 1959; Golson 1959, pp. 45-46).

The next excavation was that of a second beach midden site, the Sunde site (N38/24), discovered at the time of the Pig Bay excavation. This site was partially excavated in 1963 and is reported in a following paper.

The most recent investigation was the simultaneous excavation in 1967-68 of two undefended ridge occupation sites, of a type frequently encountered in the site survey. Excavations at both these sites are described in this volume.

### SITE SURVEY

During the early part of 1963, intensive field recording was undertaken on the island by members of the Auckland University Archaeological Society, directed by a Site Recording sub-Committee consisting of the writer, Miss A. Leahy and Mrs. M. Hougaard (then Miss M. Nicholls). The survey of Motutapu was part of a programme which endeavoured to combine the recording of sites on the offshore islands, begun the previous year on Ponui (Davidson 1963), with training in site recording techniques for interested members of the Archaeological Society. The methods employed in recording and the inexperience of many people taking part led to some inaccuracies and incompleteness of coverage which are discussed below; nevertheless it is believed a high percentage of existing sites were located, and briefly recorded on the standard forms used in the N.Z. Archaeological Association's site recording scheme. A similar coverage was achieved for the adjacent islands of Motuihe, Rakino, and the western end of Waiheke. Further sites have since been added by individual recorders and the coverage has been extended (in 1967) to include Brown's Island. All sites recorded are now on record in the New Zealand Archaeological Association's files.

The survey of Motutapu was carried out by small groups equipped with 1:25,000 topographical maps of the island and, in some cases, tapes and compasses. Each group covered a pre-assigned territory. Little use was made of aerial photographs, as the majority of sites do not show well on them. Sites were recorded by written descriptions, and by elementary mapping techniques, including pacing, and compass and tape survey. No sites were mapped by more accurate means with the exception of N38/24 and N38/21, which were mapped during excavation.

The weaknesses of this type of survey are several. A few sites may have been missed, particularly on the eastern side of the island, either because some parties could not cover every ridge in the time available, or through the failure of inexperienced members to recognise fainter indications of pits and/or terraces. The former applies principally to the northern and eastern portions of the island and was largely remedied by further exploration during 1967-68. The latter may be adduced as a possible explanation for the relative paucity of sites in the southern and central portions of the island<sup>1</sup>. Further weaknesses are apparent in the quality of the recording. Some sites were not accurately located, particularly the inland ones. More serious is the fact that the exact dimensions of sites and number of features were not recorded in sufficient detail to permit any detailed analysis. This is particularly true of the largest sites. Thus only general statements can be made about site size. It must be said, however, that some sites are so poorly defined by surface features that any analysis based on surface measurements could be misleading.

All the sites recorded are shown on Fig. 1. It can be seen that the majority are fairly close to the sea and, on available evidence, the central ridges were largely unoccupied. Most sites are near fresh water, and beaches where canoes could safely land.

The sites were recorded on the basis of observable surface features, and members participating in the survey were instructed not to describe sites according to presumed functional categories. In the discussion which follows, therefore, sites are grouped according to a general classification based on surface evidence. Such a classification may be meaningless, if not actually misleading, when we come to describe prehistoric life on Motutapu: in the initial stages of a site survey, however, there are good reasons for avoiding functional interpretations of visible features.

Following the general guidelines available for site surveys in New Zealand at the time (see for instance Golson and Green 1958), sites were divided into three main groups as follows: 1) sites with recognisable defensive earthworks; 2) sites on which earthworking in the form of pits or terraces was visible, but which lacked visible defences; 3) sites in which the only recorded evidence of human activity consisted of midden or refuse deposits. The sites are discussed below under these headings.

<sup>1</sup> Since this paper went to press, two additional sites have been reported in the south-east part of Motutapu, on the coast between sites N38/50 and N42/142 (Fig. 1). There is a headland pa at Otahuhu Point and a small undefended site consisting of several terraces on the next ridge to the north.

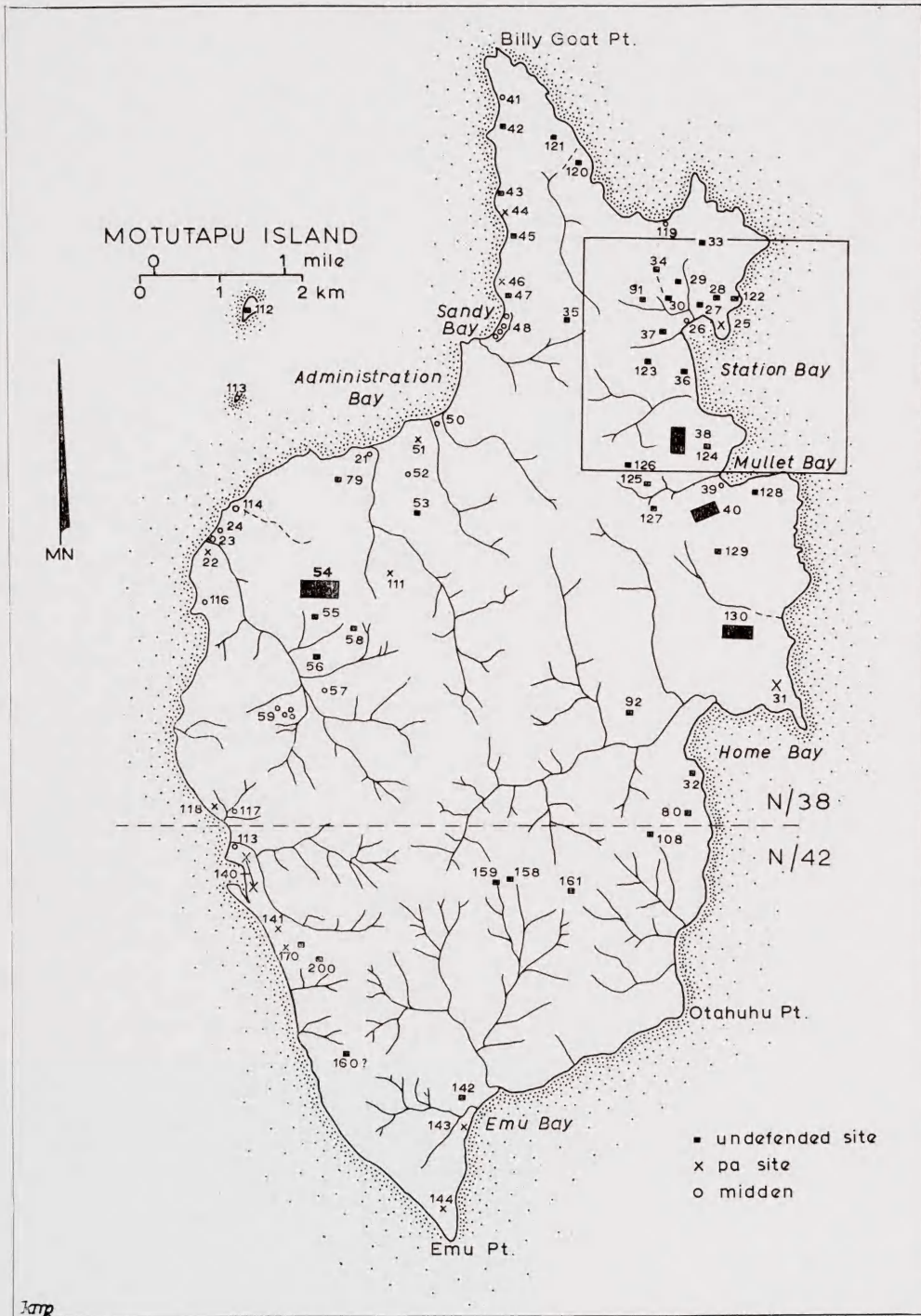


FIG. 1. Distribution of recorded sites on Motutapu Island.

## FORTIFIED SITES (PA)

Thirteen sites in this category have been recorded. With one exception, they are all on the coast; a pattern that has been observed also on Ponui Island (Davidson 1963). In topographical terms they can be described either as headland or cliff edge pa (Golson 1957) but, in fact, most coastal situations that offered defensive possibilities were utilised, and the choice of situation was probably dictated by strategic rather than topographical requirements. The two most impressive pa are N38/31 and N38/25, both on headlands commanding good views of the channel between Motutapu and Waiheke, and guarding two sheltered bays, Station Bay and Home Bay, with their stream valleys and undefended sites (Fig. 2). Both pa are defended by deep transverse ditches and have scarped and terraced interiors. Surface pits are visible within the defended area of N38/31, while there is a group of pits immediately outside the ditch at N38/25. Five more "headland" pa are dotted



FIG. 2. N38/25, fortified headland at Station Bay, Motutapu.

around the western coast between Billy Goat Point and the Rangitoto causeway. Surface pits are visible on N38/44 and N38/46, while all show some signs of internal terracing and midden deposits. In the southern part of the island, along the raised cliffs of Waitemata sandstone, "cliff-edge" pa occur. These utilise the cliff as one lateral defence, and feature two or more transverse ditches and a lateral ditch or terrace on the inland side. Unfortunately, all these sites seem to have been partially filled in by cultivations, and none is sufficiently well preserved for the presence or absence of pits, for instance, to be confidently recorded. N42/140, 141 and 143 seem to have been of this type, while N42/170 was probably also similar. N42/144 is represented only by the remnant of a trench. It may have been either a cliff-edge pa, or a very large headland pa.

The only coastal position on the island which by virtue of its natural features and location might be expected to be fortified, but where no site was found, is Billy Goat Point, which is heavily modified by World War II fortifications. If there was a prehistoric pa here, no evidence of it remains.

One site does not conform to the coastal headland/cliff-edge pattern exhibited by the others. N38/111 is a rounded hill top defended by a rectangular earthwork which is in places definitely a ditch, at others merely a scarp and terrace.

Most, if not all of these pa have at least some associated midden remains. Two were recorded as having surface evidence of more than one occupation, and it seems likely that excavation would reveal successive occupations on most or all of them. N38/25 has surface evidence of an earlier, and partially infilled ditch immediately outside the present deep ditch. At N38/44 an eroding face revealed completely filled pits, in addition to pits which were visible on the surface, implying earlier and later phases of pit building on this site.

#### UNDEFENDED PIT AND/OR TERRACE SITES

The most common form of field evidence on Motutapu Island is the man-modified area of ridge or hill top which lacks earthwork defences. Owing to the preoccupation of New Zealand field archaeologists with fortifications, these tend to be lumped together as "undefended". The 42 sites of this category on Motutapu range from six instances of isolated pits to the three largest sites on the island. All occupy areas of ridge, either on gently sloping spurs or knolls. Some are very close to the sea, others are on spurs abutting into swampy valleys. A fourfold division according to size and complexity has been established but, in fact, there is an almost continuous spectrum from smallest to largest.

#### LARGE COMPLEX UNDEFENDED SITES

N38/54 is undoubtedly the largest prehistoric site on Motutapu Island. It was originally recorded as a pa, but its lack of defensive ditches and the gentle slope of the scarps have led to its reclassification as an undefended site. It is situated in the north-west part of the island on a high round hill which carries a trig at 364 feet (111 m) above sea level. The top of the hill is flat and grassy with no visible surface

features, but on the southern and western slopes a number of large broad terraces are visible. There are a few indistinct terraces on the northern and eastern sides, but these are not continuous, and there is no evidence that the entire circumference of the hill was ever terraced. Many of the terraces carry a heavy deposit of shell midden, sometimes as much as 18" (46 cm) deep and fairly concentrated. The site commands a fine view of the surrounding countryside and, in so far as the approaches are steep, it may be said to be naturally defended. Its discontinuous nature, however, makes it doubtful that it could be effectively fortified.

Two other large and complex sites were recorded on the island. N38/40 is a hill between two streams running into Mullet Bay. The hilltop and several spurs running down from it to the beach are all modified, in what appears to be a planned arrangement. A rough count on this site indicated at least 11 recognisable pits and 17 terraces, as well as a heavy scatter of shell midden. In this case, the hillside is steep and inland access could have been cut off by a palisade. N38/130 is somewhat similar. It is surrounded on three sides by swamp while on the fourth it is connected to the main ridge system by a low saddle. It is thus almost an island in the swamp. The rounded hilltop is completely landscaped with terraces and/or pits, again set out in such a way that they appear to be the result of a single plan.

Each of these sites, because of its planned arrangement, must be the result of a single extensive occupation, rather than a fortuitous conglomeration of smaller sites of different ages. At some stage during the island's history it was occupied by communities who built settlements as large as, or larger than, any of the recognisable fortified pa; communities moreover who did not surround their settlements with defensive works.

#### MEDIUM-SIZED UNDEFENDED SITES

Broadly speaking, these are sites in which there is evidence for more than half a dozen pits and/or terraces in planned arrangements. Superficially they are not unlike two undefended sites previously excavated in other areas of the Auckland Province, Skipper's Ridge at Opito (Parker 1960) and N53-54/6 at Kauri Point (Green 1963a). Fourteen sites have been assigned to this category, although there is undoubtedly some overlap with the next group. They are mostly on the ends of spurs, or half way up ridges, although one is on a hill top, and one is on the central ridge in the northern part of the island. Two consist of a series of single pits and/or terraces strung out along a ridge, but the remainder are clusters of features grouped at a point where the terrain is wide enough to permit more than a single row of structures.

In these, as in other undefended sites, it was often impossible to determine whether a feature was a pit or merely a terrace. The surface evidence usually consists of a slight depression, or patch of greener and more luxuriant grass, sometimes accompanied by a strong growth of thistles. One of the objects of the 1967-68 excavations (described in following papers) was to determine whether or not pits were present. Results, however, showed that similar surface evidence may represent either a terrace, or a filled pit.

Several sites in this category were as large as some of the pa. In particular, a strong similarity was apparent between N38/43 and 45, in this category, and the

fortified sites 44 and 46. These four were similar in size and location; the presence of transverse ditches on the latter pair, however, indicate that they were definitely fortified.

Six of the sites in this category were recorded as consisting of pits, terraces and midden. A further two were listed as terraces and midden. No midden was recorded for the remainder, but it is probable that excavations or more careful surface examination would reveal midden.

#### SMALL UNDEFENDED SITES

Twenty sites were recorded towards the lower end of the size range. These included groups of two, three, or four pits, groups of two, three or four terraces, combinations of one pit and two terraces, or one pit and one terrace, and a single recognisable terrace with a large amount of midden. Many sites had associated midden. Some were situated on steep or narrow ridges, which would not permit larger aggregations, but others were in situations that would apparently accommodate larger clusters without difficulty.

#### SINGLE PITS

Six instances of single pits were recorded. In all cases it seemed fairly certain that they were indeed isolated pits. No midden was recorded with any of them; this may, however, reflect inadequate recording, rather than an actual absence of midden.

#### MIDDENS

This, too, is a very broad category in which several different types of site are grouped together. They may be divided for discussion purposes along two different lines, according to whether or not they contain evidence of industrial activity, particularly stone working, and whether they fall into Green's (1963a, p. 147) categories of beach stream middens, or dry land middens.

Eleven middens located on coastal flat areas were recorded. Four of these contain abundant evidence of stone working, while the remainder are characterised predominantly by shellfish remains.

#### COASTAL WORKING FLOORS

The four principal working floors are located in sandy bays in the north-western portion of the island, at or near stream mouths. N38/23, in the southern portion of Northwestern Bay, was marked by exposures of flakes and shell in the sand. N38/24, on the other side of the stream mouth to N38/23, has been excavated (Scott, following report). It contained layers of occupation above and below the Rangitoto ash. N38/21, at Pig Bay, similar to N38/24, has also been excavated and briefly reported on (Golson and Brothers 1959, Brothers and Golson 1959, Golson 1959). N38/48, at Sandy Bay, is a series of exposures in sand hills along the length of the bay. On all these working floors, the principal industrial activity seems to have



been stone adze making, utilising the local greywacke which outcrops in suitable and accessible forms along this portion of the coast.

#### OTHER BEACH STREAM MIDDENS

The remaining beach stream middens are located in other flat alluvial areas, where so far no traces of industrial activity have been encountered, and include Station Bay and Mullet Bay, at both of which there is a scatter of shell midden on the flat behind the beach; Administration Bay, where the midden is largely destroyed by the army barracks; the unnamed bay south-east of Billy Goat Point, and the small bay immediately north of N38/23 and 24. N38/116 represents a fairly continuous scatter of midden along a coastal shelf in this area.

Two further beach middens, N38/117 and N42/113 near the Rangitoto causeway, consist of larger and more concentrated shell midden deposits, more resembling the type sometimes interpreted as the result of specialist shellfish collecting activities. These are the only two sites on the island that are considered to belong to this type.

#### DRY LAND MIDDENS

One dry land midden contained evidence of stone working. N38/41 consisted of shell midden and stone flakes spilling down a steep bank below a flat ridge end. No signs of terraces or pits were observed on the ridge, although the possibility of an undefended site existing here was noted during the survey. The results from excavations at N38/30 (Leahy, this volume) indicate conclusively that stone working was sometimes carried out on undefended sites on the island and it is probable that this was also the case here.

The remaining dry land middens, N38/57, 59 and 52, are in the north-western portion of the island, which is the most heavily affected by Second World War defensive works. All these middens occur in situations where undefended sites might be expected, but have not been recorded. It is quite possible, however, that there are, or were, undefended pits or terraces at these places.

Only two sites remain to be mentioned. These are N38/112, and 113, which consist of midden scatter on the old greywacke stacks which outcrop as islets to the north-west of Administration Bay. N38/113 could have been a small defended position, but only the midden now remains as evidence of occupation.

### DISCUSSION

Even though an intensive survey has been carried out on Motutapu and four sites have been partially excavated, we are far from being able to describe in detail the prehistoric occupation sequence. The amount of research required to elucidate the past of this small island should serve as a warning against too hasty, or too sweeping generalisations about the prehistory of the Auckland area, or the Auckland Province.

It is to be hoped that at some future date more detailed information about the vegetation cover and natural resources of Motutapu may be available. As yet, little

attempt has been made to investigate these aspects, which will require the co-operation of scientists from other disciplines.

At present, Motutapu is entirely grassed, with small stands of pohutukawa, *Metrosideros excelsa* Gaertn., karaka, *Corynocarpus laevigatus* J.R. & G. Forst., and tawapou, *Planchonella novo-zelandica* (F. Muell.) Allan, in only a few places. Apparently the island was not covered with coastal forest in early European times. Possibly the Rangitoto ash shower inhibited succession towards coastal forest; more probably, the Polynesian occupants kept parts of the island clear.

The range of birds recovered from the early level of N38/24 provides some indication of the fauna exploited by the earliest occupants (Scott, this volume). Bird remains are largely absent from post-eruption deposits, suggesting that Motutapu did not support large populations of land birds following the ash shower. At the present time, Motutapu has a substantial population of pukeko and one or two pairs of hawks; in the past, these and other land birds would have been reduced rapidly by Polynesian occupants, leaving only the sea birds.

Today, the coasts offer a limited range of rocky shore shellfish, notably rock oysters, with substantial numbers of sand or mudflat species only at Islington Bay. In general, the shellfish available would not attract people with the resources of the East Coast Bays, and the Tamaki Estuary at their disposal. The island would, however, be well placed for fishing.

Motutapu is large enough to have supported a small permanent population in Polynesian times; whether or not it did so, however, cannot yet be determined. The greatest difficulty in interpreting both excavation and survey data in the Auckland area arises from our lack of knowledge of the extent to which Polynesian inhabitants ranged over a wide area in pre-European times. For the Auckland area neither traditional nor historical evidence offers much assistance, beyond a general impression of considerable mobility.

We cannot therefore consider the evidence from Motutapu without reference to neighbouring areas, tempting though it may be to view Motutapu as a discrete area. The possibility that Motutapu was just one element to be exploited by people ranging over a larger and more varied territory must constantly be held in view. Until more excavation results are available from surrounding areas, it will be impossible to control this aspect of interpretation with any certainty.

The sites on Motutapu themselves, however, provide some indication of what the island was used for, and what it was not used for. Even though the time element is as yet poorly controlled, some indication of the function of the sites is possible.

The earliest sites at present known are the Archaic working floor areas N38/21 and 24. The lowest level of the latter site shows it to have been first occupied as a camp site at which fish, shellfish, and birds were consumed, and at which the locally outcropping greywacke was first worked. The use of the sites continued, however, for a considerable period after the Rangitoto eruption. If Golson's interpretation of the Pig Bay site is correct, indeed, the greywacke outcrops continued to be used for the manufacture of Archaic adzes until the 17th century (Golson 1959, p. 46).

Green's interpretation would place the working floor component at Pig Bay at some unknown earlier period (1963b, p. 54). The depth of deposit at both excavated sites, however, suggests use of the greywacke long after the eruption even if not as late as the 17th century.

The first known occupation of Motutapu, then, was a camping occupation, during which the occupants lived on local fauna, and exploited local rocks for adzes. Sites of this nature cluster on the north-west coast where the most suitable greywacke outcrops occur.

It might be expected that a continuing use of the island would be as a base for fishing parties. Only a few sites have so far been found, however, which contain evidence of this. These are clustered around Islington Bay, and are surprisingly absent from the sheltered anchorages of Station, Mullet and Home Bays, although more intensive exploration of these areas might reveal new evidence. Otherwise coastal midden remains are scattered and non-concentrated.

There is no doubt that the majority of sites on Motutapu are clusters of pits and terraces, only a minority of which show visible signs of defence, but most of which at least have some associated midden remains. The question of interpreting these sites will be discussed in greater detail in succeeding papers; it will be argued that many of them were used both for residential and for food storage purposes.

With complete lack of time control, it is difficult to discuss the possible settlement pattern at various times other than in most general terms. It can be said, however, that the three largest sites on the island are larger than the pa. If the occupants of these large sites were engaged in seasonal or peacetime activities with a fortified pa somewhere in the background to retreat to, their pa must have been one of the large Auckland cones.

Similarly, the medium-sized sites tend to be of comparable size to the pa on the island and in some cases it is difficult to escape the conclusion that at least some of the pa, particularly those in the north-west of the island, were similar in every respect to unfortified sites, and must have been fortified merely in response to an immediate need.

Only the small undefended sites, and the isolated pit sites can be interpreted as the result of the separate activity of a single domestic group, who presumably belonged to a larger community with a larger communal site somewhere else.

Obviously, a great deal more needs to be discovered about these sites before their full history, and that of Motutapu as part of the greater Auckland area can be understood. Their relative ages, the relationship of defended to undefended, and the extent to which cultural continuity on the island and cultural relationships with mainland areas or other islands can be demonstrated, all require investigation. The evidence of the sites themselves, however, suggests that Motutapu was used primarily for gardening and food storage, throughout much of its history, by people who had to consider defence, but were not primarily concerned with living in fortified pa; and who also exploited the local rock, and participated in fishing activities and shellfish gathering while living on the island.

ACKNOWLEDGEMENTS

The site survey could not have been accomplished without the enthusiastic support and assistance of Mr. N. Burnell, Farm Manager, Lands and Survey Department, Motutapu, in 1963, and the members of the Auckland University Archaeological Society.

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